

**REMARKS**

Claims 1-73 are pending. Applicants have amended claims 1-4, 8, 11, 28, 32-33, 46, 52, 58, 60-66, 69, 71, 76 and 82-83 to set forth the subject matter of the elected invention more clearly. Claims 5-7, 9-10, 12-27, 29-31, 34-45, 51, 53-57, 59, 67-68, 70, 72-75, 77-81, and 84-85, directed to non-elected subject matter of the invention, are withdrawn from consideration. Applicants reserve the right to pursue the subject matter of the withdrawn claims in one or more divisional applications.

In addition, Applicants note that, besides the above-mentioned claims, claims 86-107 are also pending. The Examiner did not mention these claims in the current Office Action dated August 12, 2003. Because claims 86-107 are also drawn to non-elected invention, these claims should be considered as being withdrawn.

Upon entry of these amendments, claims 1-107 will be pending.

A detailed listing is presented, with an appropriate defined status identifier, of all claims that are or were in the application, irrespective of whether the claim(s) remain under examination. As noted, these amendments do not go beyond the original specification.

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and following remarks.

***Objection to the Specification***

Applicants have deleted the embedded hyperlink and/or other form of browser-executable code on page 9 of the specification.

***Objection to the Claims***

The Examiner states that claims 11, 32, 33, 76, and 82-83 contain nucleotide sequence sans identifiers and that the recited sequence of claim 82 does not correspond with the sequence of SEQ ID NO:21.

Furthermore, Applicants note that the Examiner did not consider the preliminary amendment filed September 13, 2001, which incorporated the SEQ ID NO. for each of the sequences disclosed in the present application. In this response, Applicants do not need to insert any sequence identifiers as pointed out by the Examiner.

However, Applicants have corrected the recited sequence of the forward primer of Pro-L (SEQ ID NO:21) in claim 82 by submitting a revised sequence listing (see appended copy).

With respect to claims 11 and 32 that recite "PRO-L" as having a nucleotide sequence of less than 10 bp, Applicants are not required to include this sequence in the Sequence Listing in accordance with 37 C.F.R. §1.821(a).

Applicants have amended claim 1 by inserting step (xiii) as required by the Examiner. The incorporation of step (xiii) in claim 1 is supported in the specification at page 26, Example 15 to page 28, Example 19.

***Claim Rejection Under 35 U.S.C. § 112***

The Examiner considers claims 1-4, 8, 11, 32, 33, 46, 52, 58, 60-66, 69, 71, 76, 82 and 83 as being indefinite. Applicants have amended these claims to provide proper antecedent basis for the phrases "the selected primers," "the amplifying," "D-Loop," and "PSL-PROL." This rejection has been rendered moot.

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the above rejection.

***Claim Rejection Under 35 U.S.C. § 103***

The Examiner rejects claims 1-4, 8, 46, 52, 58, 60-66, 69 and 71 as being unpatentable over Foran (*J. Exp. Zool.*, 1991), in view of Yamaguchi *et al.* (*Mol. Phylogen. Evol.*, 2000), in further view of Davidson (WO 92/05277), in further view of Lee *et al.* (*J. Mol. Evol.*, 1995), in further view of Hermstadt *et al.* (U.S. Patent No. 5,827,657), and in further view of Haygood *et al.* (*J. Exp. Zool.*, 1994). The Examiner alleges that it would have been *prima facie* obvious to one of ordinary skill in the art to have modified the teachings of the cited references to practice the claimed invention. Applicants respectfully traverse this rejection.

A proper rejection for obviousness under §103 requires consideration of two factors:

- (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the

claimed composition, or device, or carry out the claimed process and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure.

*In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438 (Fed. Cir. 1991) [emphasis added].

Applicants submit that the present invention is not obvious over the cited references within the meaning of section 103. This is because none of the cited art provides any direction or alternatives in designing primers for the amplification of the target genes in myctophid fishes. More particularly, there is no suggestion in the art for one of the ordinary skill to focus on the selected gene regions, such as Cyt b, D-loop, 12S RNA, Rod and ITS-2. For example, to obtain the DNA probe for the Cyt B gene, the inventors had to use Cyt1 and Cyt 2 primers to pull the CytB gene and reamplify this target gene with CB1-L and Cyt 2 primers (see claim 10). Further, to obtain the DNA probe for the ITS2 gene, the inventors had to first employ the ITS1 forward and ITS2 backward primers to fish out the gene and reamplify the gene with ITS2 forward and ITS2 reverse primers (see claims 12-13). None of the cited art provide such guidance.

In alleging obviousness, the Examiner does not consider the present invention as a whole. The Examiner states that it would have been obvious to take a particular set of genes that are conserved to apply to the present invention. Applicants respectfully disagree with this statement because the genes in question are not fully conserved. These genes are a mixture of conserved and non-conserved genes. One of ordinary skill would not be motivated to pursue the same route and to achieve the same desired result as the present invention.

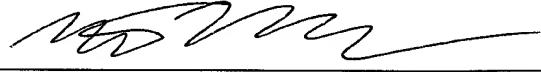
Moreover, there is no suggestion or motivation in the art to amplify the genes of the myctophids having special habitats and adaptive strategies for comparative genomic purposes. As an example, there is no suggestion in the art to study cytochrome B, a respiratory-related gene, and rhodopsin (ROD), a sight-related gene, that have different adaptive sequences in response to various environments, for such purpose.

In summary, the combination of the cited references do not render the claimed invention obvious. Accordingly, the Examiner has failed to make a case of *prima facie* obviousness. Applicants, therefore, respectfully request that the above rejection be withdrawn.

**CONCLUSION**

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of this application are requested. An early notice in this regard is earnestly solicited. In the event that any issues remain, the Examiner is invited to contact the undersigned with any proposal to expedite prosecution.

Respectfully submitted,



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